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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,265

01/06/2005

Kazuyasu Nishikawa

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EXAMINER

IM, JUNGHWA M

ART UNIT

PAPER NUMBER

2811

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
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3 MONTHS

04/25/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/25/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/520,265

Applicant(s)

NISHIKAWA ET AL.

Examiner

Junghwa M. Im

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/2005, 10/2005.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 18, 2007 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanba (JP 2003-068862) in view of Pon (US 6800918).

Regarding claim 6, Fig. 2 of Tanba shows a semiconductor device comprising:

a semiconductor substrate (6);

an inductor (21) provided with a first conductor interconnection (2) formed spirally on the semiconductor substrate; and

a shield (11) that is provided with a second conductor interconnection in a ring having a continuous configuration provided along an outer periphery of the spiral pattern of the inductor except for an opening in a portion of the second conductor interconnection, and the second

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conductor is electrically connected to ground potential (as shown in Fig. 3), wherein said shield includes a plurality of components with the plural components extending in corresponding plural planes, wherein the plural components of the shield include a first and second component each having a perimeter that is partially opened (as shown in Fig. 1), the first component and the second component are in different vertical planes.

Fig. 2 of Tanba shows most aspects of the instant invention except “the first and second components are arranged such that the openings in the perimeters of the first and second components are not superposed in a stacked state of the plural components.” Fig. 2 of Pon show a formation of a shield ring (28) around the inductor (30) having a opening in the perimeter at a location that is different from the openings in the Tanba’s device.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate Pon’s teachings to form the openings in the second layer at the different location into the device of Tanba in order to have the openings in the perimeters of the first and second components not superposed in a stacked state of the plural components through forming the openings in the second layer at the different location to adjust the noise reduction.

Note that a machine translation for the Tanba reference is available at JPO web site http://www.ipdl.inpit.go.jp/homepg_e.ipdl .

Regarding claim 7, Fig. 2 of Tanba shows an interconnection width of the shield is equal to or more than a size of a spacing of the spiral pattern of the inductor, and is equal to or less than a radius of the spiral pattern of the inductor.

Regarding claim 9, Fig. 2 of Tanba shows a plurality of interconnection layers (17) formed on the semiconductor substrate, each of the plurality of interconnection layers

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corresponding to one of the plural planes, wherein the inductor is formed in any one of these interconnection layers; and the second conductor interconnection is formed in a different interconnection layer from the interconnection layer in which the inductor is formed.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanba in view of Pon as applied to claim 6 above, and further in view of Kawahisa et al. (JP 2003-068862), hereinafter Kawahisa.

Regarding claim 8, the combination of Tanba and Pon shows most aspects of the instant invention except “a distance between the shield and an outer border of the interconnection of the inductor is equal to a spacing of the spiral pattern of the inductor.” Fig. 1 of Kawahisa shows that a distance between the shield and an outer border of the interconnection of the inductor is equal to a spacing of the spiral pattern of the inductor.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Kawahisa into the device of Tanba/Pon in order to have a distance between the shield and an outer border of the interconnection of the inductor being equal to a spacing of the spiral pattern of the inductor to improve the noise reduction.

Note that a machine translation for the Kawahisa reference is available at JPO web site http://www.ipdl.inpit.go.jp/homepg_e.ipdl .

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanba in view of Fattaruso (US 6348391).

Regarding claim 10, Fig. 2 of Tanba shows a semiconductor device comprising:

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a semiconductor substrate (6) ;

an inductor (21) provided with a first conductor interconnection (2) formed spirally on the semiconductor substrate; and

a shield (11) that is provided with a second conductor interconnection in a ring having a continuous configuration except for an opening in a portion of the second conductor interconnection, and

the second conductor is electrically connected to ground potential (shown in Fig. 3), wherein said shield includes a plurality of components with the plural components extending in corresponding plural planes.

Fig. 2 of Tanba shows most aspects of the instant invention except a shield formation along an inner periphery of the spiral pattern of the inductor. Fig. 1 of Fattaruso shows a shield formation (16, 17) along an inner periphery of the spiral pattern of the inductor (28).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Fattaruso into the device of Tanba in order to have a shield formation along an inner periphery of the spiral pattern of the inductor to adjust the noise reduction rate.

Regarding claim 11, Fig. 2 of Tanba shows an interconnection width of the shield is equal to or less than a size of an interconnection width of the inductor.

Response to Arguments

Applicant's arguments with respect to pending claims have been considered but are moot in view of the new ground(s) of rejection.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (571) 272-1655. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard T. Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Junghwa M. Im
Examiner
Art Unit 2811

jmi
4/14/2007